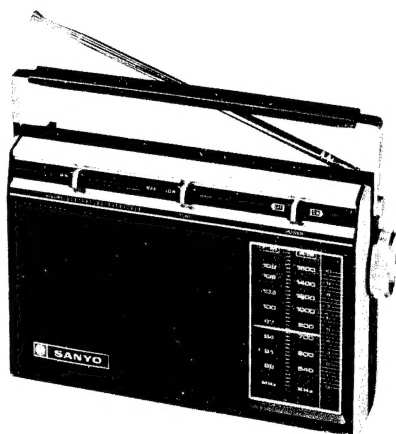




SANYO AM/FM PORTABLE RADIO RP 5311 (Z) SERVICE MANUAL

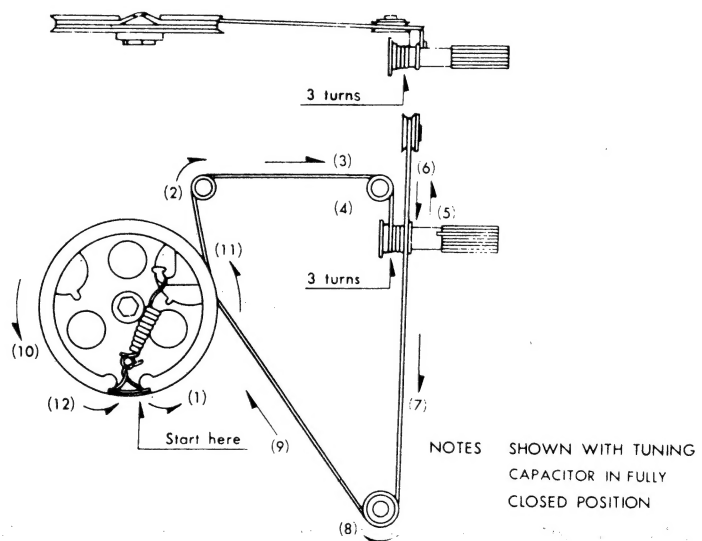


A PRODUCT OF SANYO ELECTRIC CO., LTD.

SPECIFICATIONS

Frequency Ranges:	MW (AM) 510 — 1605 kHz FM 87.5 — 108 MHz
Intermediate Frequencies:	MW (AM) 455 kHz (for Canada) 460 kHz (for Continental) FM 10.7 MHz
Transistors:	2SC930E FM RF Amplifier 2SC930D FM Converter 2SA101 MW Converter 2SC930E x 2 FM/MW IF Amplifiers 2SC930E FM IF Amplifier 2SB185 Audio Amplifier 2SC537 Audio Driver 2SB187 2SD187 Audio Output
Diodes:	7
Sensitivity:	MW 70 μ V/m (for 50 mW output) FM 4 μ V
Power Output:	Maximum 500 mW Undistorted 300 mW
Power Source:	6V DC; Four 1.5V Penlight Batteries and 117V AC for Canada market (RP 5311 PF) 220V AC for Continental Market (RP 5311 Z/SM)
Current Drain:	No signal 15 mA Maximum 150 mA
Outlets:	8 Ohm Earphone & FM Stereocast Adaptor
Speaker:	2-1/4" PM Dynamic Speaker
Cabinet Dimensions:	7-3/8"(W) x 4-7/8"(H) x 2-1/8"(D)
Weight:	1-3/8 lbs.

DIAL CORD STRINGING



TO TAKE OUT CHASSIS

1. Remove two screws on the cabinet back, and separate the cabinet back.
2. Remove three slide knobs and a tuning control knob.
3. Remove three screws (marked in red) on the chassis.
4. Then take out the chassis carefully.

ALIGNMENT PROCEDURES

GENERAL ALIGNMENT CONDITIONS

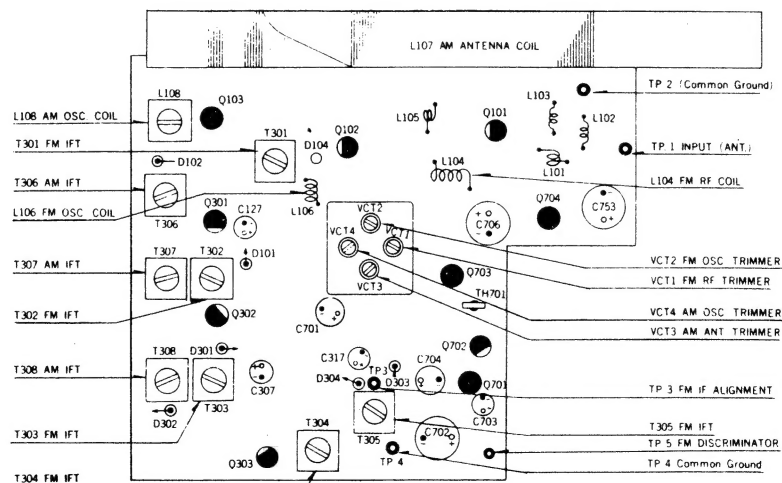
1. The position of volume control is at maximum position.
2. The position of tone control is at "HIGH" position.
3. Signal input must be kept as low as possible to avoid overload.
4. Use an output of the highest possible sensitivity.
5. Standard modulation is 400 Hz at 30% amplitude (for AM) and 22.5 kHz deviation (for FM).

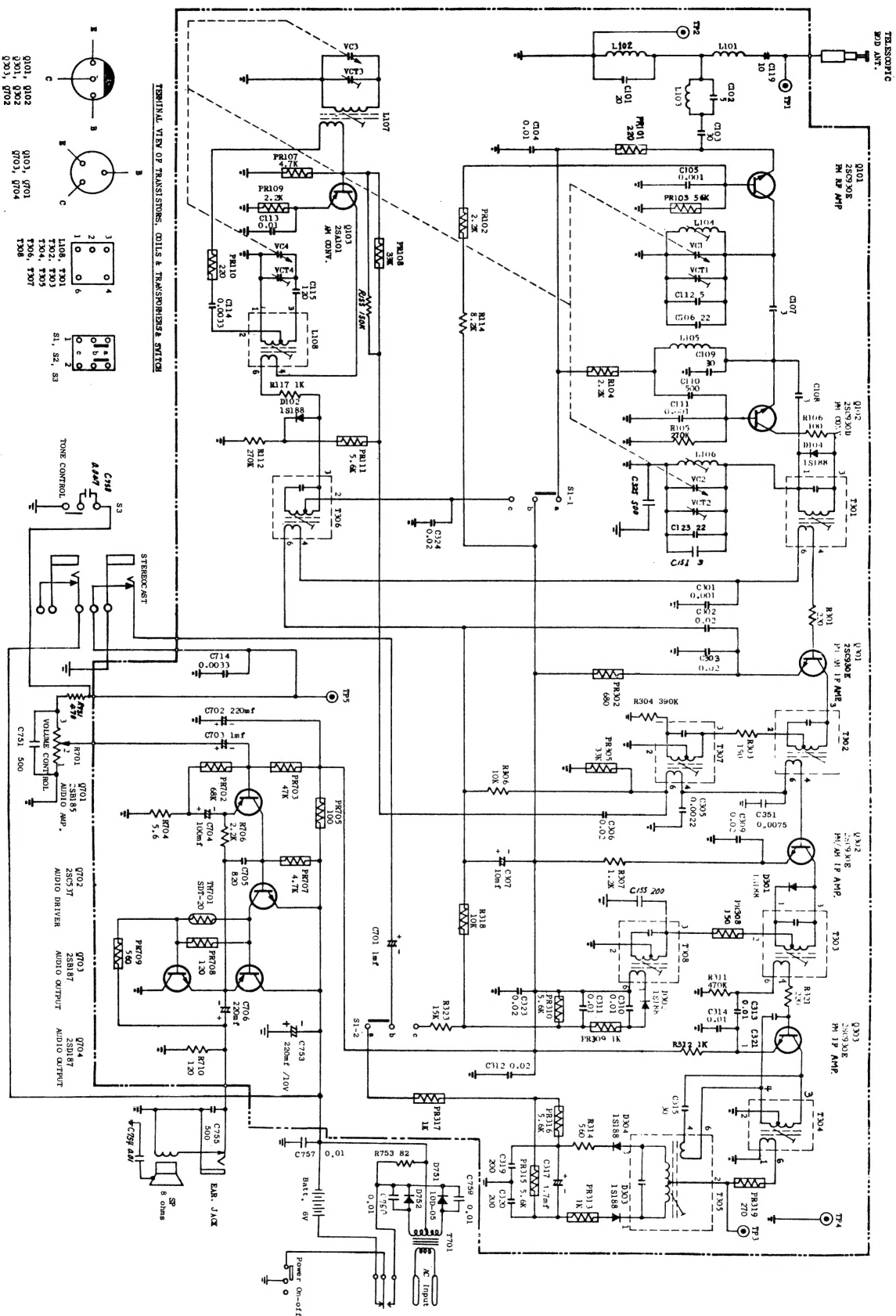
AM BAND – Band selector switch in AM position

Step	Connection of Signal Gen.	Input Signal Frequency	Dial Setting of Radio	Connection of Output Meter	Adjust	Remarks
1	Loop Antenna	455 kHz or 460 kHz	Lowest End	Across Speaker	IFT T306, T307, & T308	Adjust for Maximum.
2	Same	600 kHz	600 kHz	Same	Osc. Coil L108	Same
3	Same	1400 kHz	1400 kHz	Same	Osc. Trim VCT4	Same
4	Same	600 kHz	600 kHz	Same	Ant. Coil L107	Same
5	Same	1400 kHz	1400 kHz	Same	Ant. Trim. VCT3	Same
6	Repeat steps 2 thru 5 to obtain maximum sensitivity.					

FM BAND – Band selector switch in FM position

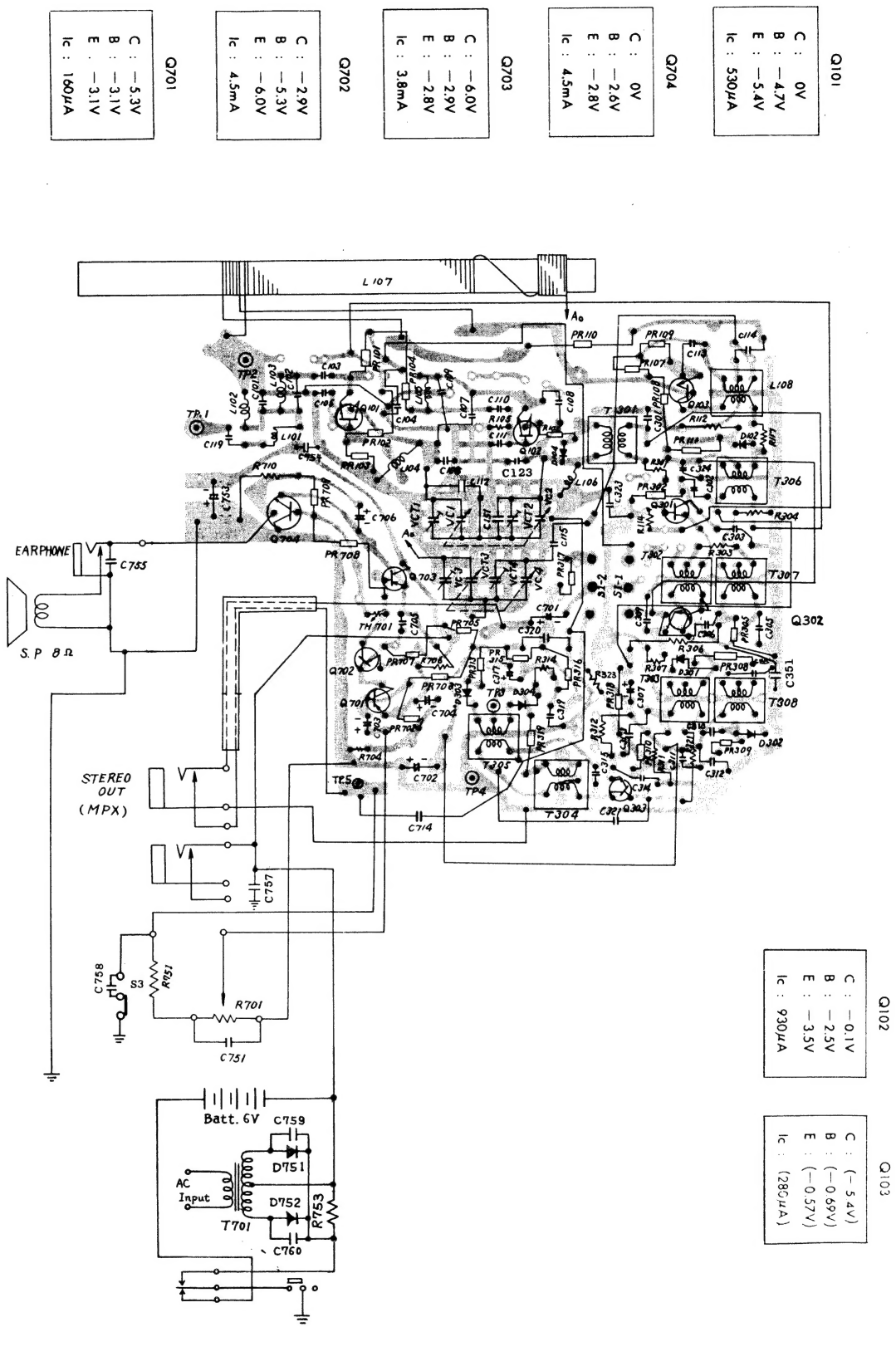
Step	Connection of Signal Generator	Input Signal Frequency	Dial Setting of Radio	Connection of Meter or Oscilloscope	Adjust	Remarks
7	Connect Sweep Marker Generator to TP. 1 and TP. 2.	10.7 MHz	Lowest End	Connect scope input cable thru network to TP. 3 and TP. 4.	IFT T301, T302, T303, & T304.	Adjust for maximum sensitivity with symmetrical curve.
8	Same	10.7 MHz	Lowest End	Connect scope input cable thru network to R317 and TP.4.	IFT T305	Adjust for symmetrical "S" curve.
9	Connect Signal Generator to TP. 1 and TP.2.	90 MHz	90 MHz	Connect V.T.V.M. across speaker	Osc. Coil L106	Adjust for maximum.
10	Same	106 MHz	106 MHz	Same	Osc. Trimmer VCT2	Same
11	Same	90 MHz	90 MHz	Same	RF Coil L104	Same
12	Same	106 MHz	106 MHz	Same	RF Trimmer VCT1	Same
13	Repeat steps 9 thru 12 to obtain maximum sensitivity.					





MP 5311 CIRCUIT BOARD DIAGRAM (Bottom View)

5



All voltages measured from common positive ground to respective points. Voltages for FM operation shown, unless otherwise noted.

PARTS LIST

Part No.	Description	Q'ty
PACKING		
123-6-411R 463	Operating Instructions	1
123-6-141R 374	Individual Carton	1
123-6-144R 281	Foam-plastic Cushion	1
123-6-144R 282	Foam-plastic Cushion	1
	Cushion, Handle, 80×170×1.5t	1
	Polypropylene Bag, 300×280	1
	Polypropylene Bag, 80×200	1
123-6-472R 306 09	Label, "FTZ"	1
123-6-472R 292 06	Label, "Z"	1
123-6-472R 292 07	Label, "SM"	1
123-6-415R 121	Notice, RP 5311 SM only	1
123-6-472R 292 02	Label, "PF"	1
123-6-472R 213	Label, CSA	1
123-6-433R 101	Catalogue, RP 5311 PF only	1
	Garantee Card, RP 5311 PF only	1
CABINET		
R-AR577	Cabinet Assembly, RP 5311 Z	1
123-2-111R 142 02	-Cabinet, Front	1
123-2-123R 105	-Side Metal, Lefthand	1
123-2-123R 106	-Side Metal, Righthand	1
123-2-143R 246 A	-Marking Metal, Top Front	1
123-2-153R 262	-Cloth Sheet, Marking Metal	1
123-2-122R 149	-Speaker GRille	1
123-2-142R 128	-Badge, SANYO	1
123-2-137R 156	-Clear Plastic Panel, Dial	1
123-2-126R 260	-Cabinet, Back	1
123-2-384R 121	-Rest, Telescopic Antenna	1
123-6-424R 127	-Battery Instruction	1
123-2-128R 158	-Lid, Battery Compartment	1
	-Cushion, Battery Lid, 12×30×6t	1
R-AR578	Cabinet Assembly, RP 5311 PF	1
123-2-111R 142 02	-Cabinet, Front	1
123-2-126R 260	-Cabinet, Back	1
123-2-141R 309 01	-Model No. Plate, RP 5311 PF	1
123-2-143R 280 01	-Marking Plate, RP 5311 PF	1
R-AR579	Cabinet Assembly, RP 5311 SM	1
123-2-111R 142 02	-Cabinet, Front	1
123-2-126R 260 01	-Cabinet, Back, RP 5311 SM	1
123-2-141R 309	-Model No. Plate, RP 5311 SM	1
123-0-171R 141	Handle Assembly	1
123-2-271R 159	Stud Nut, Handle mtg.	2
123-2-273R 106	Spacing Plastic, Handle mtg.	2
	Washer, 5.3×9.3×0.2t, Handle mtg.	4
123-2-457R 104	Square Metal, Tapped, Handle mtg.	2
123-0-164R 110	Knob, Slide	3
123-2-163R 206	Knob, Tuning Control	1
	Cushion, Slide Knob, 3.5×3.5×1.5t	6
123-2-421R 102	Screw, Cabinet mtg.	2
123-2-146R 260	Dial Scale	1
123-0-511R 182	Pointer, Dial Scale	1
	Ribbon, Cloth, Battery Take-out	1
123-2-135R 109 A	Eye-shot Closer, Band Selector Switch	1
123-2-311R 194 A	Chassis, Plastic	1
123-2-310R 191	Bracket, Switch & Volume Control mtg.	1
123-2-372R 002 A	Bracket, Speaker mtg.	2
123-0-566R 142	Tuning Shaft	1
123-2-415R 002	Hex. Nut, Tuning Shaft mtg.	1
123-2-538R 004 A	Drum	1
123-2-425R 002	Screw, Drum mtg.	1
123-2-481R 008	Tension Spring, Dial Cord Stringing	1
123-2-543R 008 A	Pulley	2
123-2-543R 002	Pulley	2
	Dial Cord, 0.3mm dia., Tetron	1
Ref. No.	Part No.	Description
ELECTRIC ITEMS		
R701	4-222R 915	Variable Resistor, Volume Control
S1,S3	4-231R 146	Switch, Slide, Tone & Power On-off
S2	4-231R 149	Switch, Slide, FM-AM Band Selector
	4-243R 129 01A	AC Cord, RP 5311 Z
	4-243R 145 01	AC Cord, RP 5311 SM
	4-243R 136 96	AC Cord, CSA, RP 5311 PF, Canada
	4-235R 130 A	Socket, AC Inlet, RP 5311 Z

Schematic Location	Part No.	Description
ELECTRIC ITEMS		
	4-235R 188	Socket, AC Inlet, RP 5311 SM
	4-235R 169	Socket, AC Inlet, RP 5311 PF, Canada
	4-151R 106 91	Speaker, 3-1/4" 8ohms, RP 5311 Z/SM
	4-151R 106	Speaker, 3-1/4" 8ohms, RP 5311 PF
	4-152R 108 96	Earphone, RP 5311 Z/SM
	4-152R 108 01	Earphone, RP 5311 PF
	4-244R 120	Telescopic Rod Antenna
123-2-472R 010	4-235R 166	Lug, Telescopic Rod Antenna
	123-2-472R 004	Socket, STEREOCAST/EARPHONE
123-2-336R 142		Lug, C754 & ⊕ B. Supply
123-2-336R 144 B		Terminal, Battery, Negative End
123-2-336R 145		Terminal, Battery, Positive, Top
	4-226R 384	Terminal, Battery, Positive, Bottom
		Printed Circuit Board, Transformer mtg.
	4-226R 132	Printed Circuit Board, Rectifier
SEMI-CONDUCTORS		
Q101	2SC930E	Transistor
Q102	2SC930D	Transistor
Q103	2SA101	Transistor
Q301,302	2SC930E	Transistor, (for use in IF stage)
303		
Q701	2SB185	Transistor, (black rank)
Q702	2SC537Z	Transistor, (F or G rank)
Q703	2SB187	Transistor, (brown rank)
Q704	2SD187	Transistor, (brown rank) a pair
D102,301	1S188AM	Diode
302		
D104	1S188FM	Diode
D303,304	1S188D	Diode, FM Discriminator
TH701	SDT-20	Thermistor
D751,752	10D-05	Diode, Silicon Rectifier
COILS & TRANSFORMERS		
L101,102,105	4-265R 050A	Coil, VHF, 6-1/2 turns
L103	4-265R 128	Coil, VHF, 3-1/2 turns
L104	4-265R 013	Coil, VHF, 3-1/2 turns
L106	4-265R 125	Coil, VHF, 3-1/2 turns
L107	4-257R 306 02 A	Coil, AM Antenna, RP 5311 PF, Canada
L107	4-257R 306 96 A	Coil, AM Antenna, RP 5311 Z/SM, Continental
L108	4-258R 248 30	Oscillator Coil, AM
T301	4-256R 208 30	IF Transformer, FM
T302,303	4-256R 195 30	IF Transformer, FM
T304	4-256R 151 30	IF Transformer, FM
T305	4-256R 023 30	IF Transformer, FM
T306	4-256R 001 30	IF Transformer, AM
T307	4-256R 172 30	IF Transformer, AM
T308	4-256R 002 30	IF Transformer, AM
T701	4-251R 238	Transformer, 220V, AC Step-down, RP-5311 Z.
T701	4-251R 226 71	Transformer, 220V, AC Step-down, RP 5311 SM
T701	4-251R 244	Transformer, 117V, AC Step-down, RP 5311 PF, Canada
RESISTORS		
R-701	4-222R 915	Volume Control, 10K D, W/On-off Switch
R105,112	R-R274K	270K ohms ±10% 1/4W
R106	R-R101K	100 ohms ±10% 1/4W
R114	R-R822K	8.2K ohms ±10% 1/4W
R301,321	R-R221K	220 ohms ±10% 1/4W
R303	R-R151K	150 ohms ±10% 1/4W
R306	R-R103K	10K ohms ±10% 1/4W
R307	R-R122K	1.2K ohms ±10% 1/4W
R311	R-R474K	470K ohms ±10% 1/4W
R117,312	R-R102K	1K ohms ±10% 1/4W
R314	R-R561K	560 ohms ±10% 1/4W
R323	R-R153K	15K ohms ±10% 1/4W
R704	R-R5N6K	5.6 ohms ±10% 1/4W
R706	R-R222K	2.2K ohms ±10% 1/4W

NOTES: 1. Parts orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and / or resistors must be multiple of 10pcs.

PARTS LIST

Schematic Location	Part No.	Description
RESISTORS		
R710	R-R121K	120 ohms $\pm 10\%$ 1/4W
R155	R-R154K	150K ohms $\pm 10\%$ 1/4W
R751	R-R471K	470 ohms $\pm 10\%$ 1/4W
R752	R-R220K	22 ohms $\pm 10\%$ 1/4W
R753	R-R151K	150 ohms $\pm 10\%$ 1W
R754	R-R8N2K	8.2 ohms $\pm 10\%$ 1/4W
R755	R-R5N6K	5.6 ohms $\pm 10\%$ 1/4W
PRINTED RESISTORS		
PR101,110	R-R221K	220 ohms $\pm 10\%$ 1/4W
PR102,104,109	R-R222K	2.2K ohms $\pm 10\%$ 1/4W
PR103	R-R563K	56K ohms $\pm 10\%$ 1/4W
PR107,707	R-R472K	4.7K ohms $\pm 10\%$ 1/4W
PR108,305	R-R333K	33K ohms $\pm 10\%$ 1/4W
PR111,310,315,316	R-R562K	5.6K ohms $\pm 10\%$ 1/4W
PR302	R-R681K	680 ohms $\pm 10\%$ 1/4W
PR308	R-R151K	150 ohms $\pm 10\%$ 1/4W
PR309,313,317	R-R102K	1K ohms $\pm 10\%$ 1/4W
PR318	R-R103K	10K ohms $\pm 10\%$ 1/4W
PR319	R-R271K	270 ohms $\pm 10\%$ 1/4W
PR702	R-R683K	68K ohms $\pm 10\%$ 1/4W
PR703	R-R473K	47K ohms $\pm 10\%$ 1/4W
PR705	R-R101K	100 ohms $\pm 10\%$ 1/4W
PR708	R-R121K	120 ohms $\pm 10\%$ 1/4W
PR709	R-R561K	560 ohms $\pm 10\%$ 1/4W
CAPACITORS		
C101	R-CKD200K	Ceramic 20pF $\pm 10\%$ 25V
C102,112	R-CKD050K	Ceramic 5pF $\pm 10\%$ 25V
C103,109,315	R-CKD300K	Ceramic 30pF $\pm 10\%$ 25V
C104,113	R-CQS103M	Mylar 0.01mfd $\pm 20\%$ 50V
C105,111,301	R-CKD102Z	Ceramic 0.001mfd +80% 25V
C106,123	R-CKD220J	Ceramic 22pF $\pm 5\%$ 25V
C107,151	R-CKD030K	Ceramic 3pF $\pm 0.5pF$ 25V
C108	R-CKD030J	Ceramic 3pF $\pm 0.25pF$ 25V
C110,325	R-CKD501M	Ceramic 500pF $\pm 20\%$ 25V
C114,714	R-CQS332M	Mylar 0.0033mfd $\pm 20\%$ 50V
C115	R-CQT121J	Styrol 120pF $\pm 5\%$ 125V
C116	R-CKD030K	Ceramic 3pF $\pm 0.5pF$ 50V N3300
C119	R-CKD100K	Ceramic 10pF $\pm 10\%$ 25V
C310,311,313	R-CKD103Z	Ceramic 0.01mfd +80% 25V
C317	R-C9882-2	Electrolytic 4.7mfd 6.3V

Schematic Location	Part No.	Description
CAPACITORS		
C302,303,306,324	R-CKD203Z	Ceramic 0.02mfd +80% 25V
C305	R-CQS222M	Mylar 0.0022mfd ±20% 50V
C307	R-C9205-2	Electrolytic 10mfd 6.3V
C309,312,323	R-CQS203M	Mylar 0.02mfd ±20% 50V
C319,320	R-CKD201M	Ceramic 200pF ±20% 25V
C321	R-CKD010J	Ceramic 1pF ±0.25pF 25V
C701,703	R-C9203-2	Electrolytic 1mfd 10V
C702,706	R-C9879-2	Electrolytic 220mfd 10V
C704	R-C9880-2	Electrolytic 100mfd 6.3V
C705	R-CKD821M	Ceramic 820pF ±20% 25V
VC	4-222R 083	Tuning Capacitor, FM-AM Gang
C751,755	R-CKD501M	Ceramic 500pF ±20% 50V
C752		Electrolytic 330 mfd 10V
C753,760		Electrolytic 1000 mfd 10V
C754	R-CQS203M	Mylar 0.02 mfd ±20% 50V
C756	R-CQS473M	Mylar 0.047 mfd ±20% 50V
C757,758	R-CKD103Z	Ceramic 0.01 mfd ±20% 50V
Part No.	Description	
FASTENERS		
R-Y012604	Screw, Pan Head, 2.6 x 4 Volume Control mtg.	
R-Y012004	Screw, Pan Head, 2 x 4 Slide Switch mtg.	
R-Y032008	Screw, Oval Counter-sunk Hd, 2 x 8, Telescopic Ant. mtg.	
R-Y062604	Screw, Round Head, 2.6 x 4 Tuning Capacitor mtg.	
R-Y113006	Screw, Pan Head, Tapping, 3 x 6, Bracket mtg.	
R-Y113006	Screw, Pan Head, Tapping, 3 x 6, Speaker mtg.	
R-Y113006	Screw, Pan Head, Tapping, 3 x 6, Circuit Board mtg.	
R-Y113010	Screw, Pan Head, Tapping, 3 x 10, Chassis mtg.	
R-Y113006	Screw, Pan Head, Tapping, 3 x 6, Dial Scale mtg.	
R-Y332600	Spring Washer, 2.6mm dia. Drum mtg. .	
R-Y36266803	Fiber Washer, 2.6 x 6.8 x 0.3t Pulley mtg.	
R-Y36236003	Fiber Washer, 2.3 x 6.0 x 0.3t Pulley mtg.	
R-Y233001	Hex. Nut, 3mm dia., Handle mtg.	
R-Y323000	Washer, 3mm dia. Handle mtg.	
R-Y333000	Spring Washer, 3mm dia. Handle mtg.	

- NOTES; 1. Parts orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and / or resistors must be multiple of 10pcs.

The Model Number will be found on the unit bottom. Always mention the Model Number when requesting service or repair parts for your AM/FM SOLID STATE RADIO. Any informations on repair parts may be obtained from the SANYO Authorized Service Station.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

- | | | | |
|----------------|-------------------------|---------------------|--|
| 1. The CODE NO | 2. The PART DESCRIPTION | 3. The Model Number | RP 5311 PF, RP 5311 SM
or RP 5311 Z |
|----------------|-------------------------|---------------------|--|

SANYO ELECTRIC TRADING CO., LTD.
18-2, Keihan-hondori,
MORIGUCHI, OSAKA, JAPAN

Service Stations EUROPE : Name + Address of Nearest
Agent or Service Stations in Europe countries may be
obtained from : "SANYO Servicecenter",
P.O.Box CH-4001 Basel/Switzerland.

WM-609 DEC. 1972